

Submitting Plant Samples for Disease Diagnosis

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Despite all of the tender loving care that you give your plants, they may get sick. Accurate disease identification is the first step in planning an effective control program to preserve or maintain a healthy plant. Microorganisms may attack your plant, or an adverse growing environment may impose a stress on the plant. No plant is immune to all diseases. Every plant has its own set of disease problems, and an accurate diagnosis of the problem is the first step in solving the problem.

There are hundreds of diseases that attack plants in Arkansas. Some diseases are rather easy to recognize, while some are difficult and will require laboratory observation before a diagnosis can be obtained. Your local county Extension agent is trained to recognize many of the common diseases that affect plants in Arkansas, and in many cases, a call to your local Cooperative Extension Service office will be all that is necessary to obtain a diagnosis. However, if the county agent is unable to identify the "culprit," then a sample of your plants, along with some background information, can be sent through the local county office to the plant disease clinic located at the Lonoke Agricultural Extension and Research Center. When the diagnosis has been completed, the report will be sent to the county agent.

An accurate disease diagnosis is the first essential step in designing an effective plant disease management program. Early detection followed by identification allows the grower to initiate steps to minimize economic or aesthetic losses. **The accuracy of the disease diagnosis is directly related to the type of plant sample submitted to the clinic.** You can take two steps to help make an accurate diagnosis.

First, a good sample should represent the range of symptoms that you observe. Symptoms include leaf spots, fruit rots, wilting, yellowing, etc. Plants that are dry or completely rotted are of little use for a diagnosis, so the fresher the sample, the better the chances of an accurate disease identification. Plan to collect your samples early in the week so if the county agent needs to mail them to the clinic for diagnosis, they will not be held over the weekend to possibly deteriorate by the following Monday.

In addition to the physical sample, the second thing that you can do to help ensure an accurate diagnosis is to provide important background information about the plant. Accurate information is extremely important in formulating a diagnosis and offering control suggestions to you. Please provide this information on Extension form AGRI-420, which is available at all of the county Extension offices. This form must accompany all

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samples sent to the plant disease clinic. Be sure to include such things as: (1) your name and phone number, (2) name of the plant and (3) description of the problem. The AGRI-420 should be filled out as completely as possible to give a clear history and description of the problem. If possible, submit a photograph of the affected area in the landscape, garden or field. Photos are especially useful for lawn or field problems.

Guidelines for Collecting and Submitting Plant Samples

Selecting an appropriate plant sample is essential for an accurate diagnosis. Please follow the guidelines below when collecting and submitting plant samples for disease diagnosis to your local county Extension office:

1. Submit only freshly collected specimens. If possible, collect several specimens showing a progression or range of symptoms. Keep specimens refrigerated until they are brought in for examination. Bring samples into the Extension office during the first part of the week.
2. Where specific plant parts are affected (leaf spots, root rots, fruit rots, flower blights, stem cankers), submit the affected part in as many stages of the disease as you can distinguish. If practical, submit the whole plant. Enclose specimens in plastic bags. **DO NOT ADD WATER TO THE BAG.** Additional moisture will speed decay.
3. For plants showing wilting, yellowing, stunting or general decline, collect the entire plant including the root system. Do not pull plant out of the ground. Dig the plant carefully so as to disturb the root system as little as possible. Shake away excess soil. **DO NOT WASH SOIL FROM THE ROOT SYSTEM.** Enclose the root system in a plastic bag and seal it at the base of the plant stem to prevent soil spillage. Then enclose the entire plant in another plastic bag and seal. **DO NOT ADD ADDITIONAL MOISTURE.**
4. For leaf spots, submit leaves showing various stages of infection. If possible, bring in twigs or branches with leaves still attached. Enclose leaves in a plastic bag. Individual leaves may be placed between layers of **DRY** paper towels.
5. For lawn and turf diseases, submit a 3- to 4-inch diameter plug taken where the healthy and diseased areas meet so the sample will contain both diseased and healthy turf. Take the plug 2 to 3 inches deep and include roots and the adhering soil. Samples can be dug with a garden trowel or small spade. Enclose sample plugs in a plastic bag. **DO NOT ADD ADDITIONAL MOISTURE.**

For specific additional information regarding collecting and submitting plant samples for disease examination, contact your local county Extension office.